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October 27, 2004

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APPLICATION NUMBER: 60/506,470

FILING DATE: September 25, 2003

RELATED PCT APPLICATION NUMBER: PCT/US04/31288

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Certified by



Jon W Dudas

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15541 U.S. PTO
09/25/03

PTO/SB/16 (08-03)

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PROVISIONAL APPLICATION FOR PATENT COVER SHEET

This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 CFR 1.53(c).

Express Mail Label No. EV318285010US

INVENTOR(S)					
Given Name (first and middle (if any))		Family Name or Surname		Residence (City and either State or Foreign Country)	
John D.		Mize		Spokane Valley, Washington	
Additional inventors are being named on the _____ separately numbered sheets attached hereto					
TITLE OF THE INVENTION (500 characters max)					
Direct all correspondence to: CORRESPONDENCE ADDRESS					
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ENCLOSED APPLICATION PARTS (check all that apply)					
<input checked="" type="checkbox"/> Specification Number of Pages 7					
<input type="checkbox"/> Drawing(s) Number of Sheets					
<input type="checkbox"/> Application Date Sheet. See 37 CFR 1.76					
<input type="checkbox"/> CD(s), Number					
<input checked="" type="checkbox"/> Other (specify) 2 return receipt postcards					
METHOD OF PAYMENT OF FILING FEES FOR THIS PROVISIONAL APPLICATION FOR PATENT					
<input type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27.					
<input checked="" type="checkbox"/> A check or money order is enclosed to cover the filing fees.					
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FILING FEE Amount (\$) 160.00					
The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.					
<input checked="" type="checkbox"/> No.					
<input type="checkbox"/> Yes, the name of the U.S. Government agency and the Government contract number are: _____					

[Page 1 of 2]

Respectfully submitted,

SIGNATURE

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Date September 25, 2003

REGISTRATION NO. 48,711

(if appropriate)

Docket Number: H0006253

USE ONLY FOR FILING A PROVISIONAL APPLICATION FOR PATENT

This collection of information is required by 37 CFR 1.51. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 8 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop Provisional Application, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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EV318285016

If the treated component has threads, bosses or other parts that are to be protected during the chemical treatment and/or during the bead blasting, one or more appropriate protective coverings can be provided over such parts prior to the chemical treatment and/or prior to the bead blasting.

The invention can be utilized to treat, for example, 200mm and 300mm Ta coils.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

PROVISIONAL PATENT APPLICATION

* * * * *

**METHODS OF CLEANING AND REUSING TANTALUM
COMPONENTS**

* * * * *

INVENTOR

John D. Mize

ATTORNEY'S DOCKET NO. H0006253

Removing the TaN from Ta coils (or other components) could allow customers to reuse the coils(or other components) at least once. This is a method to remove the TaN from Ta coils(or other components) used in PVD TaN processes.

The invention includes a process for removing TaN from a Ta surface of a component. Once the TaN is removed the component (such as, for example, a coil) can then be reinstalled and reused in a sputtering chamber.

A spent component (i.e., a Ta component coated with TaN) is received. The component is treated with hydrofluoric acid (HF), subsequently treated with bead blasting, and then again treated with HF. The second HF treatment is conducted until there is little to no detectable bubbling of the acid. It appears that the bubbling is present while the TaN is present, and accordingly that cessation of bubbling indicates removal of TaN. The HF treatment can utilize a solution comprising about 33% HF (by volume) in water. The initial HF treatment can be preceded by degreasing of the component (utilizing, for example, alkali soap), and rinsing of the degreased component. The initial HF treatment can be followed by a water rinse and subsequent drying (utilizing, for example, dry stream of N₂) prior to the bead blasting. The final HF treatment can be preceded by an appropriate rinse (such as a water rinse), and can be followed by a water rinse and subsequent drying and, if appropriate, packaging. The bead blasting can utilize 16-24 grit Al₂O₃. The first HF treatment, bead blasting and second HF treatment can be together considered to comprise a three step process for treating a Ta-containing component for removing TaN from a surface of the component.



Ta Coil Refurbishment

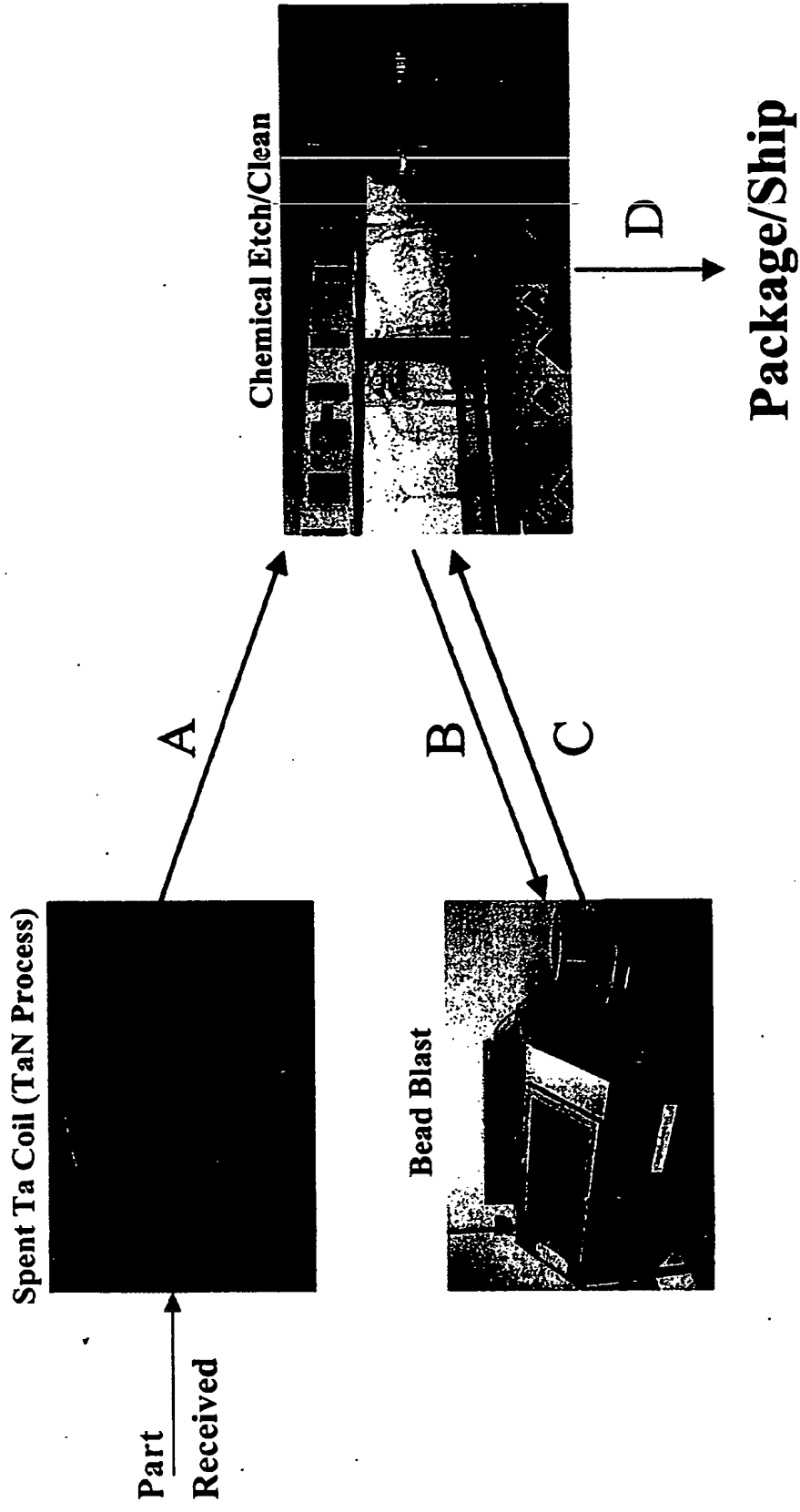
TaN Removal

9-3-03

Honeywell

OEM/Metals Group

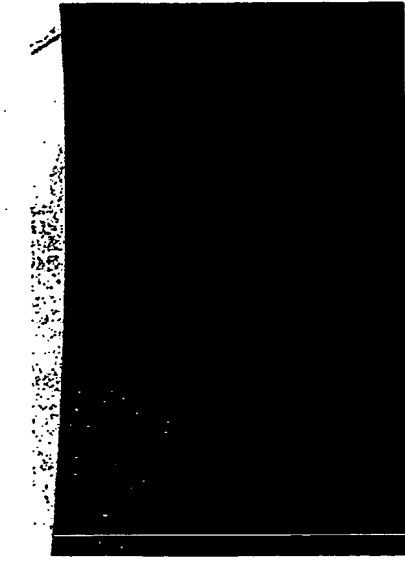
Ta Coil Refurbishment Process



300mm Ta Coil Images - Ra~380 μ -inches

Coil

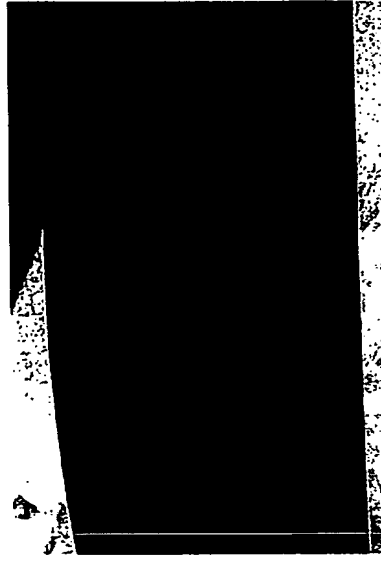
ID



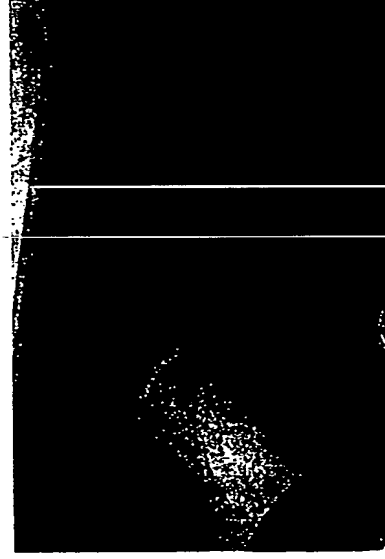
Rough Surface

Coil

OD



Coil
Boss/OD



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OEM/Metals Group

Ta Surface Cross Sections ~2000kWh



After

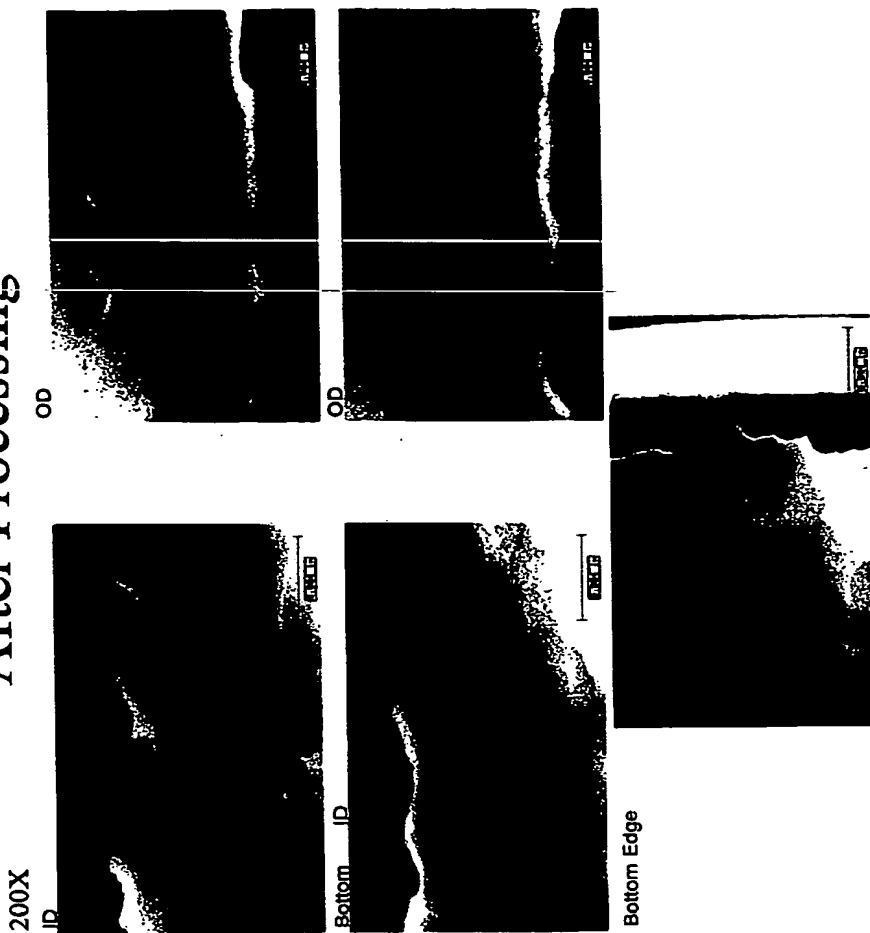


'As Is'

TaN Detected



No TaN Detected
After Processing



Honeywell

OEM/Metals Group

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